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MINUTES OF PROJECT CONFERENCE
WITH [redacted] 25X1
ON OCTOBER 2, 1957

MINIATURIZED DATA RECORDER
WITH PLAYBACK UNIT

This meeting was held on 2 October 1957 at [redacted] 25X1
[redacted] to review the status of the project, to 25X1
clarify design requirements, and to discuss various design aspects of the miniaturized data recorder and the playback system. Those present at this meeting were: [redacted] representing the Government 25X1
Agency; [redacted] 25X1
[redacted] 25X1
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Summary of Discussion

The discussion was begun with a presentation of the progress made at the Foundation on the three-channel record and playback head development, the approach and design considerations of the recorder amplifier system, and the proposed playback system design. Since the first bimonthly progress report covering the progress discussed at this meeting has been submitted the reader is referred to it for the details of the progress discussed.

Since the tape speed and recording time are functions of the maximum recorded frequency desired, the question of what information pertaining to the input data pulses would be acceptable. [redacted] stated that 25X1
considering the two factors which are of greatest importance, size and recording time, the mere presence of the pulse and its repetition rate would be satisfactory. The frequency response of the recorder data channels for

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this application need extend only to 8000 CPS since that is the highest PRR anticipated. [redacted] pointed out that there were other applications of the recorder unit which require the frequency response on the two data channels to extend to 10KC. Furthermore, the response of the audio channel need only be sufficient for voice recording; therefore, the bandwidth will be limited to 2 or 3 KC thereby improving the resulting signal-to-noise ratio. 25X1

For consideration of the type pulse data to be recorded [redacted] said that 95 per cent of the pulses would have a pulse width of 15 microseconds or less, the minimum being 5 microseconds; the maximum pulse width will be approximately 25 to 30 microseconds. Also, the PRR will range from 6000 to 7000 PPS for 90 per cent of the signals to be recorded. All the incoming data to be recorded will be negative, unidirectional pulses. 25X1

Because of anticipated tape guidance problems it was suggested that the record head dimensions could be changed if desired to 0.036 inch wide tracks rather than 0.040 inch (still maintaining the 0.100 inch channel-to-channel spacing.) However, it was pointed out that it would be more desirable to reduce the width of the playback head by this amount since the signal-to-noise ratio would actually be reduced if the record track width were decreased. This is based on previous experimental work which showed that additional noise was produced in the playback head output when the playback channel was wider than the record channel thereby picking up the extraneous recordings resulting from the fringing flux at the edges of the record head.

The possibilities were discussed of continuously recording the 1000 CPS standard frequency on the audio channel along with the voice recording. Narrowband filter techniques could be employed on playback to separate the audio and standard 1000 CPS frequency thereby giving continuous speed control

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information. However, no decision was reached at this time since it was desirable to give further consideration to the matter.

Another topic of discussion was that of the miniaturized tape transport mechanism. One method of speed reduction (from a high speed d-c motor) considered, involved gears of various types; [redacted] related previous experience with gear drives producing wow and flutter of magnitudes which caused interference and degradation of the recorded signals. Extreme care must be exercised in the selection of the drive system since the miniature recorder unit has the added disadvantage of limited space which precludes the use of an effective fly-wheel. 25X1

After this discussion a miniature tape transport mechanism involving a coaxial reel drive arrangement was demonstrated for the group. The device functioned nicely demonstrating the practicability of such a scheme. One comment made regarding all the designs to be considered was that it would be desirable, if not necessary, to simplify the tape loading procedure so that it could be done by non-technical personnel. This may, as pointed out, lead to the design of a magazine loading scheme.

Respectfully submitted,

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Assistant Engineer

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